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Accurate AGN black hole masses and the scatter in the M_{bh} - L_{bulge} relationship

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A new empirical formulae is given for estimating the masses of black holes in AGNs from the H beta velocity dispersion and the continuum luminosity at 5100 Angstroms. It is calibrated to reverberation-mapping and stellar-dynamical estimates of black hole masses. The resulting mass estimates are as accurate as reverberation-mapping and stellar-dynamical estimates. The new mass estimates show that there is very little scatter in the M_{bh} - L_{bulge} relationship for high-luminosity galaxies, and that the scatter increases substantially in lower-mass galaxies.

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